

AMPEX

CC-500 Color Television Camera System

*superb performance in a low-cost,
easy-to-operate color camera.*



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*broadcast quality, professional features,
and simple operation—in a low-priced package.*

Here is a CCTV color camera of exceptional quality. The CC-500 uses a highly-refined version of the dependable three-tube broadcast color system to deliver color fidelity unmatched in its price range.

A precision dichroic-mirror optical system splits image light into three parallel primary-color beams. This configuration permits parallel setting of the red, blue, and green pickup tubes—and the elimination

of ghosting, flare, astigmatism, and similar aberrations. Other important benefits include a reduction of color shading and a more compact arrangement of components.

Resolution quality and signal-to-noise ratio are outstandingly high in the CC-500, as is sensitivity: the camera operates effectively with normal studio lighting — 200 footcandles (optimum) or as little as 50 footcandles (minimum).



EASY SETUP AND MULTI-CAMERA MATCHING

The CC-500 was designed with **people** in mind. It gives cameramen a highly-stable all-solid-state unit that requires little attention; setup and reset procedures are brief and simple.

The camera's simplified setup gets you on-the-air in under five minutes. Luminance level and pedestal matching between tubes and cameras is exceptionally quick, and the settings remain stable. The Camera Control Unit (CCU) includes a color bar generator that gives you rapid, accurate color matching between monitors and between cameras in a multicamera setup — the easiest color matching in the industry. A thumbwheel selector provides a choice of three color temperature-compensating filters — a turn of the wheel gives you the correct filter for indoor lighting or either sunlight or cloudy weather outdoors.

By means of four pushbuttons on the rear of the camera, the cameraman can view the outputs of the red, green or blue tubes — or any combination, OR an external signal — in his viewfinder. This feature permits him to detect any differences in registration or in the quality of the outputs of the three tubes. The fourth button selects an external video signal for viewing and positioning special effects.

SIMPLIFIED, CONVENIENT OPERATING CONTROLS



The CC-500's broadcast-type features make it a pleasure to operate. Operating controls are simple and placed where they should be. The crank zoom control and the twist-grip focus control are located on the handles. The cameraman can adjust the focus, adjust the zoom, and position the camera — all simultaneously. The pushbutton control for the CC-500's automatic iris is on the

back of the camera. Depressing the iris control button permits the iris to open or close automatically to the correct aperture for lighting conditions. The system can compensate for changes in scene brightness as great as 125 to 1, with a change of video level of less than ten percent.

The CC-500 includes three separate communications systems. Two tally lights are provided: one is on top of the camera, for performers; the other is inside the viewfinder hood for the cameraman. A call button is provided for communication between the cameraman and the technician at the CCU. Jacks are provided at the CCU and at the camera for intercom connections.

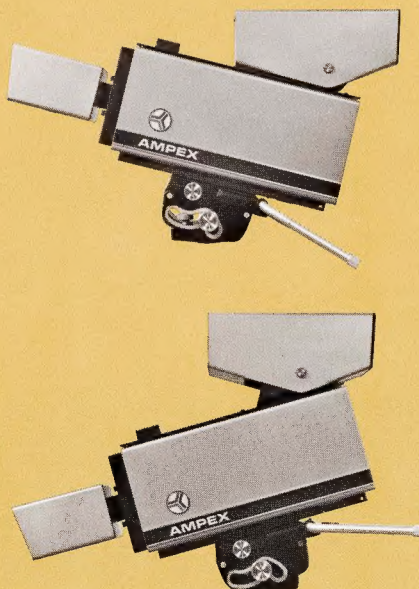
Other CC-500 advantages: a standard lightweight 50-foot cable is included, and, because the CC-500 weighs only 39 pounds, it mounts on any small, standard CCTV tripod head.

10:1 ZOOM LENS

A zoom lens with a 10:1 ratio is standard on the CC-500. The crank zoom control, which mounts on the tripod arm, gives focal lengths from 16 to 160mm — more than adequate for virtually any production. Maximum aperture: F:2.5. An optional feature is a C-mount lens adapter that accepts all 16mm C-mount television lenses.

PLUG-IN VIEWFINDER/MONITOR

The CC-500's electronic five-inch viewfinder adds several dimensions to the camera's usefulness. It doubles as a monitor when a video signal is fed to the camera from the control center; and it can be tilted both upwards and downwards, so that unusual camera shots can be handled without awkward crouching or use of stepladders. And it is removable — so that the camera can be used in tight spaces or form part of a film chain.



CAMERA CONTROL UNIT

The CCU is a standard 19 inch rack-mounting unit. Among the features it provides is a built-in NTSC standard sync generator and an encoder providing standard color composite signal. No auxiliary equipment is needed. An optional phase shift module replaces the sync generator when an external sync source is used to drive the camera. Secondary cameras can be sync-looped from the main camera. Another option is the color shading module, a plug-in circuit board that provides greater control over color adjustment for extremely precise camera matching.



The CCU's color encoder module can be unplugged to bring the camera under the control of an external encoder.

A manual control for the CC-500's automatic iris is contained in the CCU, along with a level meter. The manual control, when it is not in the "AUTO" position, overrides the control at the camera and can be manually adjusted for unusual light situations. The pushbutton Standby control caps the camera tubes for protection.

When a camera cable longer than the standard fifty feet is needed, optional lengths can be purchased. A selectable switch makes equalization adjustments for changes in cable length up to 650 feet.

OPTIONS

- C-mount lens adapter
- Additional cable (50-foot lengths)
- Color shading module
- Phase shift module

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SPECIFICATIONS

GENERAL

SCANNING SYSTEM: 525 lines, 60 fields, NTSC Standard Internal or NTSC External sync.

IMAGE TUBES: Three $\frac{2}{3}$ -inch separate mesh vidicon tubes; Type HS-270.

VIDICON BEAM ALIGNMENT: Electromagnetic.

OPTICAL SYSTEM: Dichroic mirror.

CIRCUITRY: All transistorized except for three pick-up (vidicon) tubes and viewfinder CRT.

HORIZONTAL RESOLUTION: Better than 400 lines.

VERTICAL RESOLUTION: Better than 300 lines.

GRAY SCALE: 10 shades of gray.

SIGNAL-TO-NOISE RATIO: Better than 40 dB (at Y-channel).

APERTURE CORRECTION: 0-10 db (at 4.5 mHz).

GEOMETRIC DISTORTION: 1% (at picture height).

HIGH FREQUENCY PEAKING: Easily adjustable for optimum reproduction.

AUTOMATIC IRIS: Compensates for 125-to-1 change in scene brightness with less than 10% video level change. Manual override from CCU.

COMMUNICATION CIRCUITS: Camera-head-and-CCU-interconnected tally light and intercom system.

ILLUMINATION REQUIREMENTS (at rated output level): Optimum 200 footcandles (Iris F4), Minimum 50 footcandles (Iris open).

COLOR TEMPERATURE COMPENSATION: 3000K—for tungsten light; 6000K—for clear sky; 9000K—for cloudy sky.

VIEWFINDER: Plug-in, uses 5-inch CRT. Tilttable through 40° range.

WARM-UP TIME: 10-15 minutes.

SETUP TIME: Less than 5 minutes.

GAMMA CORRECTION: Each of the three color-processing amplifier circuits independently adjustable 1.0-0.4.

DIMENSIONS AND WEIGHT:

Camera Head—
Height: 16 $\frac{7}{8}$ inches
Width: 7 $\frac{1}{2}$ inches
Length: 24 inches
Weight: 39.6 pounds

CCU—
Height: 7 inches
Width: 17 $\frac{3}{8}$ inches
Depth: 13 inches
Weight: 28.6 pounds

ELECTRICAL

VIDEO OUTPUT: Two 75-ohm composite and non-composite outputs.

VIDEO OUTPUT LEVEL: 1) 1vpp composite (sync negative) encoded NTSC. 2) .7 vpp non-composite encoded NTSC.

SYNC SYSTEMS: Internal—NTSC Standard built-in sync generator. External—NTSC with optional adjustable phase module.

Horizontal Drive4 vpp at 15.7342 kHz
Vertical Drive4 vpp at 59.94 Hz
Blanking4 vpp
Sync4 vpp
Subcarrier2 vpp at 3.579545 mHz

POWER REQUIREMENTS: 117 VAC \pm 10% 60 Hz, 100 watts.

CAMERA CABLE: 50 feet supplied (between camera head and CCU) specified performance up to 650 feet using built-in adjustable cable compensator.

CONTROLS: On rear of camera and on front panel of CCU.

ENVIRONMENTAL

Temperature Range0°C to 50°C
Relative HumidityUp to 95%
AltitudeUp to 10,000 feet above sea level.

ADDITIONAL OUTPUTS: RGB and 3.579545 mHz subcarrier.

MECHANICAL

LENS: 16mm optics, color corrected, 16 to 160mm, F:2.5, (10:1) zoom lens. Manual zoom and focus, with cable controls and

automatic iris. (Any color correct, 16mm, 'C'-mount lens may be used.)

FILTERS: Color temperature variations due to changes in lighting conditions can be easily compensated for by selecting one of three filters built in to a rotatable filter wheel accessible from outside the camera head.

CAMERA CONTROL UNIT

- CONNECTOR PANEL:** Holds all connectors from the camera and external equipment.
- CAMERA:** Connector for camera cable.
- PIX-MON:** Connector for the picture monitor. Used to check registration R, B, and G tubes in any combination.
- AUX IN:** Connector for external video signals (ON THE AIR signal or signal from another camera). Permits external signals to be viewed on camera viewfinder with the depression of a switch at the camera.
- LINE OUT:** Line connector for color output signal.
- MON OUT:** Connector for providing color monitor signal.
- COMM:** Connector for intercom circuit, tally circuit or interlock to the control system in multicamera setups.
- 75Ω-OFF:** External sync signal termination switch. When external sync is used to drive cameras, switch is turned to 75Ω for last camera in line; on other cameras, to the OFF position.
- Five BNC-type connectors for external drive inputs.
- Five BNC-type connectors for external drive outputs to loop another camera to external sync.
- Three BNC-type connectors for RGB outputs for external encoding.
- AC POWER CORD:** Plugs to wall outlet.